

WHAT IS CLAIMED IS:

1. A lithographic projection apparatus, comprising:

an illumination system configured to form a projection beam of radiation from radiation provided by a radiation source;

a support configured to hold a patterning device which is to be irradiated by the projection beam to pattern the projection beam;

a substrate table configured to hold a substrate;

a projection system configured to image an irradiated portion of the patterning device onto a target portion of the substrate; and

a reflector assembly placed in the vicinity of the source or an image of the source, the reflector assembly comprising at least an inner and an outer reflector extending in a direction of an optical axis on which the source or an image of the source is located, the inner reflector being closer to the optical axis than the outer reflector, the inner and outer reflectors each having an inner reflective surface and an outer backing layer, the backing layer of the inner reflectors being covered with a reflective layer having a reflectivity of between 0.7 and 0.99 for wavelengths between 0.1 and 100 μm .

2. A lithographic projection apparatus, comprising:

an illumination system configured to form a projection beam of radiation from radiation provided by a radiation source;

a support configured to hold a patterning device which is to be irradiated by the projection beam to pattern the projection beam;

a substrate table configured to hold a substrate;

a projection system configured to image an irradiated portion of the patterning device onto a target portion of the substrate; and

a reflector assembly placed in the vicinity of the source or an image of the source, the reflector assembly comprising at least an inner and an outer reflector extending in a direction of an optical axis on which the source or an image of the source is located, the inner reflector being closer to the optical axis than the outer reflector, the inner and outer reflectors each having an inner reflective surface and an outer backing layer, the backing layer of the outer reflector being covered with a radiative layer having an emissivity of between 0.6 and 0.95 for wavelengths between 0.1 and 100 μm .

3. A lithographic projection apparatus according to claim 2, wherein the radiative layer comprises carbon.
4. A lithographic projection apparatus according to claim 2, wherein the backing layer of the inner reflector is covered with a reflective layer having a reflectivity of between 0.7 and 0.99 for wavelengths between 0.1 and 100 μm .
5. A lithographic projection apparatus according to claim 1, wherein the reflective layer comprises a noble metal.
6. A lithographic projection apparatus according to claim 5, wherein the noble metal comprises gold or ruthenium.
7. A lithographic projection apparatus according to claim 1 or 2, wherein the inner and outer reflectors are substantially coaxial and extend substantially rotationally symmetric around the optical axis.
8. A lithographic projection apparatus according to claim 1 or 2, wherein at least the outer reflector comprises radiation fins.
9. A reflector assembly comprising:
 - at least an inner and an outer reflector, the inner and outer reflectors each having an inner reflective surface and an outer backing layer, the inner reflective surface of the outer reflector facing the backing layer of the inner reflector, the backing layer of the inner reflector being covered with a reflective layer having a reflectivity of between 0.7 and 0.99 for wavelengths between 0.1 and 100 μm .
10. A reflector assembly, comprising:
 - at least an inner and an outer reflector, the inner and outer reflectors each having an inner reflective surface and an outer backing layer, the inner reflective surface of the outer reflector facing the backing layer of the inner reflector, the backing layer of the outer reflector being covered with a radiative layer having a emissivity of between 0.7 and 0.99 for wavelengths between 0.1 and 100 μm .
11. A reflector assembly according to claim 10, wherein the backing layer of the inner reflector is covered with a reflective layer having a reflectivity of between 0.7 and 0.99 for wavelengths between 0.1 and 100 μm .
12. A reflector assembly according to claims 9 or 10, wherein at least the outer reflector comprises radiation fins.
13. A reflector assembly according to claim 9, wherein the reflective layer comprises a noble metal.

14. A reflector assembly according to claim 13, wherein the noble metal comprises gold or ruthenium.
15. A reflector assembly according to claim 9 or 10, wherein the inner and outer reflectors are substantially coaxial.
16. A reflector assembly according to claim 10, wherein the radiative layer comprises carbon.